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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/079,878	02/22/2002	Kohki Katoh	219257US2	8566

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EXAMINER

RODEE, CHRISTOPHER D

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 04/11/2003

15

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/079,878	Applicant(s) KATOH ET AL.	
	Examiner Christopher D RoDee	Art Unit 1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 9,10 and 14-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 11-13 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☒ Claim(s) 1-22 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5 + 8-12 + 176 6) ☐ Other: ____

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-8 and 11-13, drawn to a color toner, classified in class 430, subclass 108.6.
- II. Claims 9 and 10, drawn to a method of making a color toner, classified in class 430, subclass 137.18.
- III. Claims 14-20, drawn to an apparatus, classified in class 399, subclass 252.
- IV. Claims 21 and 22, drawn to an image forming method, classified in class 430, subclass 126.

The inventions are distinct, each from the other because of the following reasons:

Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the process as claimed can be used to make another and materially different toner such as a toner having a binder resin and a colorant but no titania.

Inventions I and IV are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the product as claimed can be used in another and materially

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different process, such as writing an ionographic image on the surface of a dielectric medium with an ionographic pen, developing the image with the toner, and applying a clear cover sheet over the toner under heat and pressure to form a fixed toner image sandwiched between the dielectric medium and the cover sheet.

Inventions II and IV are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention II has separate utility such as in the alternative process of discussed immediately above. See MPEP § 806.05(d).

Inventions IV and III are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the process can be practiced by hand.

Inventions I and III are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention I has separate utility such as in an ionographic process as discussed above. See MPEP § 806.05(d). The toner does not impart a patentable limitation to the apparatus because it is a material worked upon by an apparatus (i.e., it is consumed during the intended operation of the apparatus). Thus only the apparatus structure is patentable in the claims of Group III. The toner has no weight in the claims. See MPEP 2114 and 2115.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

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During a telephone conversation with Frederick Vastine on 3 April 2003 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-8 and 11-13. Affirmation of this election must be made by applicant in replying to this Office action. Claims 10 and 14-22 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Information Disclosure Statement

The nine Information Disclosure Statements cumulatively listing 156 separate items have been reviewed and all citations have been considered except for applications 09/713201 and 10/251855 because no copy of these applications was submitted as required by 37 CFR 1.98(a)(2)(i). Additionally, numerous references cited appear to be unrelated to the claimed inventions.

The portions cited (i.e. only claims, Abstract, and Drawings) of applications 10/102867, 08/985368, 09/985347, 09/903718, 09/985375, 09/985348, 10/176578, and 09/734718 show that the applications are directed to photoreceptors (i.e., layered articles) that cannot serve as toner (i.e., a composition capable developing electrostatic latent images).

Applications 09/692430, 10/086683, 09/713201, 09/709795, and 10/135377 (cited portions) and US Patent 6,406,826 are directed to the structure of carrier particles, which do not appear to be able to serve as toner.

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Application 09/867557 (cited portion) is directed to a thermosensitive recording medium, which is a layered product having a specific color developer, a leuco dye, and a sensitizer. This application is unrelated to toners or electrostatic image development.

Application 09/661444 (cited portion) is directed to a heat activatable adhesive composition, which appears to be wholly unrelated to toner or electrostatic imaging.

Numerous other cited portions of applications and patents are also directed to compositions, articles, or methods that do not appear to be pertinent to the instant claims or to toners that do not appear to have features pertinent to the instant claims. It is unclear why these applications and patents were cited because they do not appear to be "material to patentability" of the claimed invention (37 CFR 1.56).

MPEP 2004, particularly section (13), sets forth guidelines to aid applicants in their duty of disclosure. In this section it states,

"It is desirable to avoid the submission of long lists of documents if it can be avoided. Eliminate clearly irrelevant and marginally pertinent cumulative information. If a long list is submitted, highlight those documents which have been specifically brought to applicant's attention and/or are known to be of most significance. See *Penn Yan Boats, Inc. v. Sea Lark Boats, Inc.*, 359 F. Supp. 948, 175 USPQ 260 (S.D. Fla. 1972), *aff'd*, 479 F.2d 1338, 178 USPQ 577 (5th Cir. 1973), *cert. denied*, 414 U.S. 874 (1974)."

In an effort to clarify the "material" nature of these references to the patentability of the instant claims applicants are *requested* to specify why each of the above noted applications or patents was cited and to highlight those documents of most significance to the instant claims, particularly to the claims directed to the elected invention.

Specification

The specification is objected to because of the following informalities:

The formula at the bottom of page 23 contains an overwritten substituent, the formula at the bottom of page 26 is incomplete, and the formulae on pages 27 and 28 run together.

Correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 5, 7, 8 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anno *et al.* in US Patent 5,932,386 in view of Takezawa *et al.* in US Patent 6,485,876.

Anno discloses a toner having a binder resin, a colorant, and acicular particles of a wax dispersed in the binder resin as a release agent (Abstract; col. 5, l. 22-30). The wax can be a polyolefin wax (col. 4, l. 33-57) and has a melting point of 80 to 150 °C (col. 4, l. 33-42). An object of the invention is to improve the dispersibility of the wax and colorant in the binder resin (col. 2, l. 18-27; col. 4, l. 58-67). The toner can be used as a one-component or two-component developer (col. 2, l. 62+; col. 7, l. 42-49). The binder resin can be a polyester (col. 6, l. 19) and a charge control agent can be added to the toner, such as a salicylic acid metal salt complex (col. 7, l. 1-2). Useful colorants include yellow, cyan, magenta, and black colorants, such as Pigment Yellow 17 (col. 6, l. 34-42). When carbon black is used as the colorant it has a size of up to 0.5 microns (col. 9, l. 17-19). Because the wax is dispersed in the binder resin (Fig. 1(A)

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& previous citations) it appears that the binder resin and the wax are inherently insoluble to each other. In any event, the dispersion of the wax in the binder resin in the forms shown in the Figure would suggest to the artisan that the components are not soluble in each other. Titania may be added to the toner to give provide a fluidizing effect (col. 7, l. 14-22). Toner H is the Examples has a weight-average particle size of 6.2 microns and a wax dispersion average diameter of 0.41 microns. The titania in this example has a size of 30 nm (note typographical error). The toner is placed within the developing unit of an apparatus (col. 15, l. 56+). This is a container because it holds the toner in the apparatus.

Anno does not disclose the segregation rate of the titania (see pending claim 1 and spec. p. 15).

Takezawa discloses a toner having a "free rate (%)" of the external additive for a toner has less than 9 %. The "free rate" of the external additive appears to be calculated in the same manner as in the instant specification (compare Takezana: col. 5, l. 46 - col. 6, l. 3 with specification p. 15, note the same formula is present and the same device is used to make the determination). The "free rate" of the examples toner is 4.2% (col. 7, l. 11). Also note the amounts in patent claim 1. Titania is a preferred external additive (col. 4, l. 33).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to prepare the toner of Anno with titania so that the titania has a free rate within the preferred range of Takezawa, such as 4.2 %, because Takezawa teaches that free particle cause adhesion to the thickness controlling blade of a developing apparatus (col. 1, l. 28 - col. 2, l. 30) and that minimizing the amount of free titania reduces the amount of titania contaminating the blade.

Note that claim 3 appears to limit only the camauba wax with the "eliminating free fatty acid" limitation because polyolefin waxes do not normally contain any acid substances.

Claims 1, 3, 5-9, and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bertrand *et al.* in US Patent 5,554,471 in view of JP 11-258847 and further in view of *Stenz*.

Bertrand discloses a combination comprised of a cyan toner, a magenta toner, a yellow toner, and an optional black toner, each of the toners contains resin and pigment, and wherein the pigment for the cyan toner is a copper phthalocyanine, the pigment for the magenta toner is a xanthene silicomolybdic acid salt of Rhodamine 6G basic dye, the pigment for the yellow toner is a diazo benzidine, and the pigment for the black toner is carbon black (col. 5, l. 41 - col. 7, l. 56). The cyan, magenta, and yellow pigments have a diameter particle size or agglomerate diameter size of from about 0.01 micron to about 0.3 micron and the black pigment has a particle diameter size of from about 0.001 micron to about 0.1 micron. The toners also contain fuser roll release agents such as polyolefins (col. 12, l. 58 - col. 13, l. 3; col. 14, l. 57 - col. 15, l. 13) and external additives, such as titania (col. 14, l. 43; Examples VIII, IX, XI, XII, XIII, XIV, XVI, XVII, XVIII, XIX). The toner may be combined with a carrier to form a two-component developer (col. 15, l. 37 - col. 16, l. 25). In Example IV the toners are placed in a container (i.e., a housing). Given the temperature conditions in the barrel of the extruder where the resin, colorant, and other components are mixed and extruded, it appears that the resin has the a melting point near but below the extruder temperatures (e.g., less than 105 °C) (col. 17, l. 30-37; col. 13, l. 42-50). In any event, such a temperature is suggested by these disclosures by the noted disclosure and the viscosity characteristics disclosed in column 14, lines 25-34.

Bertrand does not specify the solubility of the release agent and the binder resin, the particle diameter relationship of the release agent and the toner or the segregation rate of the titania.

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The secondary JP reference discloses a color toner having a binder resin, a colorant, and a silica or titania additive. The titania has a size of 0.2 microns or less (§ [0033]), such as 0.015 microns (§ [0088]), and the release rate of the titania is 0.5 to 20 %, preferably 0.5 to 10 %, more preferably 1.0 to 8 % (§ [0020]). This rate is determined as discussed in § [0023], which appears to be the same as in the instant specification for segregation (spec. p. 15). Useful binder resins include polyesters and polyols (§ [0040]) while useful colorants include yellow, cyan, and magenta colorants. One specific colorant is Pigment Yellow 17, which is also used in Bertrand (§ [0051]). Charge control agents, such as a metal salt of salicylic acid, and release agents are also added to the toner (§ [0056]-[0061]). The toner can be used in a two-component development system (§ [0071]-[0072]).

Otani discloses a toner having a binder resin, a colorant, and a release agent wax (abstract). Otani states that the wax exists in a separated state without being compatible with the resin binder. This indicates that the toner binder resin and the wax are not soluble in each other (col. 5, l. 60 - col. 6, l. 3). The reference teaches that when the average particle diameter of the wax is too large wax deposits on the photoconductor in the developer device, and the level of the triboelectric charges is lowered. On the other hand, when the average particle diameter of the wax is too small, wax bleeding from the toner is delayed during fixing, so that the wax does not act as an offset inhibitor. The reference prefers that the average particle diameter of the wax is from 0.1 to 0.3 D microns, on the basis of the weight-average particle diameter (D) of the toner (col. 5, l. 59 - col. 6, l. 10). Waxes include polyolefins and carnauba wax (col. 5, l. 50-54). The toner may also contain aluminum or boron complexes of salicylic acid as charge control agents (col. 5, l. 4-5). The colorant for the toner includes yellow, cyan, and magenta colorants (col. 2, l. 59-64).

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to prepare the toner of Bertrand with a titania additive having a release rate within the values taught by the reference, such as the specifically recited 0.5 % or 1.0 %, because the JP reference teaches that this feature as reducing irregularities in a contact printed image, gives more uniform charging, and reduces the likelihood that the titania will adhere to a device in the photocopier system (§ [0006] - [0009]). It would have been obvious to one having ordinary skill in the art at the time the invention was made to produce the toner of Bertrand with its wax having an average particle diameter of the wax is from 0.1 to 0.3 D microns because Otani teaches that this feature reduces wax deposits on the photoconductor in the developer device while providing appropriate "bleeding" of the wax from the toner for offset prevention.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anno *et al.* in US Patent 5,932,386 in view of Takezawa *et al.* in US Patent 6,485,876 as applied to claims 1, 3, 5, 7, 8 and 12 above, and further in view of Katoh *et al.* in US Patent 6,303,258.

Takezawa and Katoh were described above. The references do not disclose the ratio of the toners weight-average diameter to number-average diameter. Katoh teaches that a toner should have a ratio of number average particle diameter (D_n) to weight average particle diameter (D_w), D_w/D_n , ranging from 1.0 to 1.5. The reference states that when this ratio is greater than 1.5, the particle diameter distribution becomes broad and toner charge distribution also becomes broad. This results in a deterioration in developing and transferring properties. Color tones of the resultant color toner images tend to vary. The toner of Example 13 has a ratio D_w/D_n of 1.3.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to produce the toner of Takezawa with a ratio of number average particle

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diameter (D_n) to weight average particle diameter (D_w) of 1.3, as exemplified, because Katoh teaches that this gives improved development characteristics, a narrow particle size distribution, and excellent transfer characteristics.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anno *et al.* in US Patent 5,932,386 in view of Takezawa *et al.* in US Patent 6,485,876 as applied to claims 1, 3, 5, 7, 8 and 12 above, and further in view of Eguchi *et al.* in US Patent 6,268,099.

Takezawa and Katoh were described above. The references do not disclose the wax characteristics of claim 4. Eguchi discloses a polyolefin wax, specifically a polyethylene, that permit lower fixing temperatures and permit reduced damage to a fixed image of a toner containing the wax (col. 5, l. 22-45). These waxes find use in colored toners (col. 9, l. 66 - col. 10, l. 10). Specific waxes are given in Table 2, noting Waxes 1 and 2, which are particularly pertinent to the instant claims.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the wax of Eguchi in the invention of Anno because Anno suggests the use of polyethylene waxes (col. 4, l. 35) and Eguchi discloses specific polyethylene waxes that produce reduced damage to a fixed image.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher D RoDee whose telephone number is 703 308-2465. The examiner can normally be reached on most weekdays from 6 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 703 308-2464. The fax phone numbers for the

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organization where this application or proceeding is assigned are 703 872-9310 for regular communications and 703 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308-0661.

cdr
April 8, 2003



CHRISTOPHER RODEE
PRIMARY EXAMINER